RURAL INDIA

Vol. XX, No. 5] JUNE, 1957 [Whole No. 214

"Salvation of India lies in Cottages."
—*MAHATMA GANDHI*

THE NEXT FIVE YEARS

THE topic that is engaging the anxious thought of eminent leaders at the moment and is variously discussed in the press is of the political future of the country during and after the next five years. The failure of the ruling party to give clean and efficient administration all these 10 years and loss of confidence of the people in the integrity of the average Congressman have brought the country on the verge of anarchic conditions. In the absence of alternative political party or leadership to replace the Congress, it is greatly apprehended that with further loss of hold of the Congress, which is most likely in years to come, the country may find itself plunged into chaos and internecine conflict affecting the future of the nation.

The reverses that the Congress has received in various States during the last elections are sufficiently indicative of the fact that, by and large, it has lost the confidence of the people. Of late, the Prime Minister, Pandit Nehru appears to be greatly perturbed at the declining prestige of the Congress and loss of people's confidence in the integrity of the Congressman. In an outspoken address at a secret session of the Conference of the Pradesh Congress Presidents and Secretaries, which has lately been published in the "Economic Review" journal of the All-India Congress Committee, Pandit Nehru is reported to have warned the Congressmen of the deteriorating situation and said:—

> "The public has lost, by and large, its respect for the integrity of the average Congressman. Individual Congressman may have that respect, that is an individual matter, but, by and large, the public has lost confidence in the average Congressman. Every Congressman wants to stick to office — wherever it may be and once that idea creeps in, one of the basic things that gives strength to the Congress disappears."

It is not sticking to office alone and exploiting it for personal profit that has brought the average Congressman into disrepute, but the way he makes use of his office to the advancement of personal interests and to the neglect and/or detriment of those of the people that has turned the people anti-Congress. As inspired by Gandhiji's teachings in pre-independence days power is no longer a means to the end of people's welfare, but a means for self-seeking and aggrandisement for the Congressman. He seems to have become the fountain-head of corruption and nepotism which has wroght demoralisation of the worst type both in public life and public administration of the country. Reviewing the results of the last elections Shri B. G. Verghese, in the issue of the 'Times of India' dated 4th May, writes:—

> "The Congress won independence on the slogan that good Government is no substitute for self-government. Today it has to learn that self-government is no substitute for good Government either. Ten years ago the Congress still inspired by Gandhiji, looked on power as a means to an end, the

end being the welfare of the people. The Congress was to be the servant of the masses. Today, the party has lost its idealism. Power has become an end in itself. It means patronage and pomp, ease and comfort. Self has been put before service, caste before community and region above nation. The Congress was once a good cause. Now it sometimes looks like degenerating into a bad habit."

In the words of Pandit Nehru himself, the symptoms that one sees in the Congress are those of *'inner failure'* of which there is no remedy. These are indicative of approaching decay and ultimate destruction of an individual or organisation. It is rather fighting nature to expect recovery from the fatal malady of *'inner failure'* when once it sets in an organisation or an individual. In the course of the address referred to earlier by Pandit Nehru, he has brought home the problem of *'inner failure'* that has affected many Congressmen and stated :

"If there is any inner failure in an individual or an organisation or a nation, there is no remedy for it. If one fails, he loses his sense of direction and function and his crusading spirit, and just becomes dis-spirited and frustrated—that is what inner failure means. There can be inner failure for the organisation too. I do not say that has happened to the Congress, but we should be warned that it might have. But it has happened to many Congressmen."

Individual Congressmen of the early Gandhian era apart, many of whom have already left the Congress in disgust, by and large, the Congress organisation as a whole suffers from the affliction of *'inner failure'* after it has come to power. That annihilating process of *'inner failure'* is more or less complete and it is probably the long attachment of Pandit Nehru with the Organisation that keeps him in doubt about it. However, sane and politically thinking section of the people in the country entertain no such doubt and they have no illusions of its recovery from this fatal malady.

Economic Revolution

While the Congress is in a process of decay and disintegration, it could not be expected to accomplish the difficult task of Administrative and Economic Revolution in the country that awaits. A dying individual should not be expected to carry forward the process of national development to successful end, which it is vainly trying to attempt. The Congress regime in New Delhi under old leadership suffers from complacency and there is hardly any sense of urgency in matters of administrative and economic development. The failure of the Congress rule in these two vital aspects concerning national development appears to be beyond doubt. Writing about the complacency of the Congress rule in the matter of Economic development Shri Verghese writes :—

"The economic revolution cannot be accomplished by the administration. It calls for political leadership at every level, a leadership that the Congress has not provided thus far. There is furthermore, no room for complacency. Yet, this complacency exists. There is even now little sense of crisis about the Second Plan, which is almost heading for the rocks. On the contrary, the degree of unconcern over it exhibited in Delhi is astonishing."

What is most astonishing about the political situation in the country is that the people in their helplessness still look up to the Congress to work up miracles. They should realise that it needs freshness of youth, vigour of mind and spirit of a crusader to accomplish revolutionary undertakings. A spent up political organisation in a virtual process of disintegration and with a leadership having no Constructive vision and make up of mind is not expected to work up administrative and economic revolutions.

Critical Years

The political situation in the country as emerged after the last elections is one of revolutionary changes in the political life of the country. The Congress having failed to work up economic and administrative development of the country during the last 10 years of its rule is now fading

a way in people's estimation. The soul of the nation is pining for change of political life and conditions which may ensure development of the country on right lines and which the Congress has failed to do during years it has been in power.

This change may not be smooth and may be accompanied with revolt and revolutions in different parts of the country is what is being most dreaded by the people. Kerala, Maharashtra and Orissa point the way that the change in the political life and leadership is imminent and is called for. The gloom and frustration in the country that fills the life of the people calls for new political organisation and leadership. Let this change be smooth and peaceful is all we pray for.

NOTE

REPORT ON COMMUNITY PROJECTS AND N. E. S. BLOCKS

FROM time to time the Programme Evaluation organisation of the Planning Commission publishes reports on the working of the Community Projects and the National Extension Service Blocks. Lately, it has published its fourth report which innumerates successes attained by the Programme in some directions while it has failed to achieve the same in some other directions. In the attainment of physical targets in the sphere of construction and irrigation a measure of success has been achieved, while much progress was not noticeable in the change of social attitude of the people and the development of basic qualities which are important. The qualities of self-reliance and self-initiative on which the development of the community primarily rests are largely lacking in the working of the programme, referring to which the report mentions :—

"Too much dependence on Government initiative and assistance is still being exhibited by the vast majority of the rural population affected by the programme.

In fact, expectations of what the government can do to help have perhaps reached a stage beyond the current resources of the Government. On the other hand, there has not taken place an equally strong sentiment of self-reliance and initiative whether individual or cooperative."

Further says the report:—

"The least successful items in the programme have been those involving changes in social attitudes, such as readiness to go in for Community Centres, youth clubs and women's organisations."

The report specifically complains that there is not sufficient understanding of the objectives and techniques of Community Development Programme among the specialised staff, although the movement has now been in existence for about five years. And, what greatly hampers the progress of the programme is lack of coordination in the administrative machinery of the Government.

Gram Sevaks on whose right attitude and right approach the success of the programme primarily depends have come in for severe criticism by the report when it says :—

"That Gram Sevaks were not visiting villages and if they did so, were confining their activities to people whom they knew well. They were also getting "official". In a country like India no extension worker could hope to get the confidence of the people unless he attends to what the villagers feel are their most immediate needs and unless he makes himself useful to them in the manner in which they want."

The most regrettable feature of the programme is the absence of proper spirit animating the activities of the workers which makes its success uncertain and of doubtful value.

WHY ARE WE MISSING OUR TARGETS?

By: **G. B. SIRDESHPANDE**

WHEN a cultured man misses his target, he looks for the cause in himself. A man full of himself either blames other people or the external circumstances. Our political leaders have been following the latter course. Our topmost leaders in the country have been blaming in and out of season, either the communal organisations or communists or western blocks for all the ills in the country. The leaders are conveniently ignoring their own lapses and shortcomings in the present 'melee'.

Poor sense of proportion

Sometime back, the Minister in charge of the Public Works Department of the Hyderabad State gave utterance in a public speech that as a result of the Tunga Bhadra Project, 50,000 acres of land were scheduled to be irrigated in the year 1954–55, and one lakh acres in the year 1955–56. In fact, only 5000 acres were irrigated in the year 1954–55 and 11000 acres in the year 1955–56. The reason given for such poor performance was lack of budgetary provision for digging water channels to convey water to the fields. Crores of rupees have been spent in building the dam and in impounding the water. Thousands of acres of land has been submerged in water bed; but there is niggardly budgetary provision for making use of that water. It is just like creating a factory and making no provision for working the factory; purchasing cloth without providing stitching charges! A very wonderful business organisation!

The above instance is not a solitary instance. In most cases it is the same. Subsidised Medical aid centres are started in rural areas; the officers are appointed and paid; but no speedy adequate provision is made for medicines and other equipment. There is a 'craze' for laying foundation stones for erecting buildings. By the time the buildings are completed, the purpose of the building is lost sight of. Sometimes the buildings remain unroofed and unfloored for a number of years for want of budgetary sanction.

No Objective Approach

Even villagers are not spared from this craze. The other day, I visited a village. An imposing school building worth about Rs. 25000 has been newly constructed. The school teachers were sitting each with a cluster of 5 or 6 boys. The girls' classes were empty. I felt such an investment in buildings was a waste when there was no need for it. I aired my views to an intelligent looking villager. He replied, "The immediate problem in rural India is abolition of poverty. It must be first tackled". Everything is subordinated to appease hunger in the village. It must be first pacified. Poverty cannot afford the luxury of free education. Most people cannot forego the earnings of their children. Compulsory education is only in paper. The actual scene is what you see here. Our political leadership has lost touch with the common folk and their living conditions. They view things in the spectacle of western glasses. The remedies are proving more of a burden than a benefit.

On my way, I happened to view a Maternity Home built for the villagers. There was no body inside the Home. There was nobody as there were no maternity cases attending the Home. I had a talk with the watchman. He told me, "Nobody attends to the Maternity Home. The well-to-do have ample space in their houses and invite the dais to their houses. The poor are averse to make a show of their poverty in the matter of feeding the patient and tipping the staff. Hence no attendance".

In another village, I was told the adult education class was a big hoax. Already

literate people are collected on the inspection day. The inspection is satisfactorily completed. The grant is sanctioned. It is shared by all the principal actors.

The same story is heard of the basic education schools. Neither carpentry nor spinning or weaving lores are continued by the trainees after the formal education. Most pupils run after school leaving examination or the Matriculation. The teaching of these basic lores has very little use in the pupil's life.

Equilibrium Needed

People are not yet ripe to make use of welfare activities. In trying to rehabilitate the neglected garden, our Government has started with building the Farm House before removing the mud from the half buried well. The gardener can enjoy the farm house if he can grow valuable irrigated crops in the garden.

This is what the common man feels about our development projects. There is waste of money in doing *unurgent* things.

We, who know both the intentions of the Government and the aspirations of the people feel pained at the spectacle. Any target to be achieved must take into cognizance two other factors: Character of the agent and the circumstances. There must be equipoise between the aim, the character and the circumstances. Our leaders' aim has been too high in relation to the character and the circumstances of the people concerned. Good means in the hands of a wrong man work in the wrong way. No wonder if our achievements in Welfare Activities have been warped in line with our people's resources—physical, mental and moral.

India is a vast continent with varying degrees of economic, cultural and natural resources. A uniform remedy cannot be applied to all. Every progressive step should be spaced according to the possibility of natural resources and the character of the people and the Agents — the bureaucracy and the controlling politician.

Disastrous Emptying

It is time for our prudent leadership to take stock of their achievements in really benefiting the common man. The common man often expresses: "The present political party has come in power like an ill omened bird, which when enters the house, empties the whole house." There is chronic scarcity of necessaries of life in the country. Sense of security has disappeared from the lives of many. Already the middle-class is emptied of its belongings. The common man will meet the same fate by improvident taxation. Only the bureaucracy and the Active politicians are the gainers in all this exhibition business. How long, can the favoured few remain 'untouched' by the spreading fire of discontent and poverty? Should not a Welfare State usher in peace and plenty?

PROBLEMS OF INTERNATIONAL INVESTMENT

By : **Prof. S. V. RAMAYYA**

SINCE the end of the Second World War the necessity and need of foreign lending by prosperous countries to the less fortunate countries for various purposes-like the reconstruction of the war damaged countries, to foster the stabilisation of foreign exchanges, to prevent mass unemployment, to bolster up democratic institutions and to stop the westward spread of communism, to facilitate the industrialisation of backward countries,—have been advocated with great vigour. In the

present context of the world economy, only a country like U. S. A. is in a position to lend abroad vast sums for the development programmes of various countries. The principal sources of capital for international investment during the 19th century were Great Britain, France and Germany. International Investment had contributed greatly to the economic progress of a number of countries. Eugene Staley estimated the world's total of long term international investments outstanding in 1929 at about $ 50 billion—of this U. S. foreign investments constituted $ 15 billion, British overseas investments amounted to $ 18 billion and other countries investments amounted to $ 17 billion. During the war period most of the foreign investments in the U. S. A. have been liquidated for meeting war expenditures. The greater part of all international investments during the last century or more have been made by private agencies and the dominant motive has been profit seeking.

But after the post-war period due to various causes, the scope of governments and I. B. R. D.'s investments have increased greatly and private investments have decreased.

We need not stress the arguments in favour of foreign lending. Suffice it to say that when we are visualising the concept of one 'world', the prosperity of all the peoples of the world is important for the maintenance of world peace. If foreign lending contributes to substantial increases in world production of goods, commodities and services and also world trade, all countries—lending and borrowing countries—may benefit.

Most of the under-developed countries require for their rapid economic growth foreign help. Most of these countries in Asia have growing populations with abundant natural resources but little capital for their development. Because of the poverty of the people, savings are low, the yields from taxation cannot be expected to be substantial, the amounts of internal loans which governments can raise are not large. In these circumstances, foreign investments, either from governments, or private individuals or International Institutions will greatly facilitate the growth of their economics and lessen the burdens in the initial stages.

No doubt economic development can be effected as was the case in the Soviet Union during the Inter-war period without material participation by a foreign lender. "Starting virtually from scratch, the Soviet Union in a few years developed an industrial economy which was strong enough to enable the country to meet successfully the greatest military challenge the world has seen. With minor exceptions the industrial plant which emerged in two decades from a formerly one-sided agricultural country, was made in the Soviet Union. The Soviet Industrial plant was squeezed out of the low standard of the living of the people simply because countries that had investment surpluses did not participate". But this has become possible because of totalitarian regime and whether such a progress is practicable under democratic auspices in the under-developed countries is a matter that deserves attention.

There seems to have been a gradual realisation of the need for foreign aid and appreciation of the difficulties of the under developed countries in raising the standards of living of the people. But in certain quarters diffidence is expressed about the utility of foreign aid. Mr. Nurkse in his book, "Problems of capital formation in under-developed countries" thinks that unless there is complementary action on the domestic front much benefit cannot be expected. His analysis is briefly this that foreign capital in under-developed countries went into extractive industries working mainly for export. Mr. Singer finds that

'foreign investment served primarily the interests of the industrial creditor-countries and that the economic growth resulting from it was inevitably unbalanced in character'.

"In under-developed countries proper domestic purchasing power is so small that foreign business capital does not find it worth while to come into work for the home market. If it comes in at all, it comes in to work for the export market".

Now we do not find private foreign business capital to go to work for the expansion of the low income countries because of legal, cultural, political and economic obstacles. That is to say the traditional type of foreign investment is virtually non-existent today. We also find that in under-developed countries private foreign business establishments have not been eager to impart technical and managerial knowledge to the local population unless compelled to do so by government regulations.

The case for International loans is strong. Foreign loans will enable these countries to use them for their domestic economic development in accordance with an over all economic plan. In the case of Japan, foreign capital in the form of loans played a notable part for its development.

Mr. Nurkse says that mere flow of capital unless accompanied by great domestic savings efforts, may not increase the total rate of capital formation. 'It is conceivable that the use of international loans may lead to the high and rising propensity to consume which is induced in poorer countries by the great and growing discrepancies in per capita income and consumption levels. The effectiveness of autonomous foreign investment depends essentially on complementary domestic action in the receiving country'. In the case of international grants, these may be used directly for consumption without any subsequent inconvenience. The ear-marking of particular foreign loans or grants to specific investment projects may do something to ensure the productive use of funds.

The World Bank grants loans for particular projects. Sometimes the lending countries require the borrowing countries to spend the proceeds on the lending countries. This is done mainly because the loans are made to finance particular projects and the proceeds of the loan are spendable only in connection with such projects.

Provided we take appropriate measures to see that loans that are given are spent productively and domestic saving efforts are not relaxed, we cannot deny the fact that all these countries require foreign investments on a large scale. A fundamental purpose of the I.B.R.D. is extension of loans to facilitate reconstruction in war devastated countries and extension of capital and production know-how to industrially backward regions.

In the Second Five Year Plan, we have placed our requirements of foreign aid at Rs. 800 crores. In our previous articles we have pointed out that our foreign aid requirements may not be merely of the order of Rs. 800 crores but may be of the order of Rs. 1200 crores. Naturally in such a context the part expected from advanced countries and I.B.R.D. cannot be under estimated. The loans sanctioned by the World Bank during the first ten years of its existence were as follows: $ 258 million to Australia, $ 347 million to African countries, $ 674 million to American republics, $ 929 million to European countries and $ 386 million to Asian and middle eastern countries. India could therefore say that although the treatment it has received from the Bank is not bad, it is certainly not generous. "The Bank's main purpose should be now the promotion of economic development and the Bank has to play a crucial role in the financing of our present and subsequent plans."

Recently the World Bank has granted a loan of $ 95 million to raise output in private steel mills in India so as to help to add 700,000 tons to the steel capacity of the Tata Plant. The Bank is also granting us a loan of $ 9,800,000 for the construction of a thermal plant and is studying the possibility of granting $ 15 to $ 20 million credit for the construction of a giant hydro electric power station on the Kanya river and two other sums for the extension of existing electric power station at Durgapur. We require aids from various institutions because our industrial and railway development programmes require large amounts of foreign exchange reserves and the World Bank's assistance is needed mainly to pay for the imports of locomotives and equipments that will be required over the next few years to expand the railways capacity and step up their operational efficiency. The World Bank should have no difficulty in coming to an early decision on the basic soundness and vital importance of India's railway programme and advancing adequate loans to carry out that programme. Instead of granting loans piece meal for individual items of developmental programmes, we could derive greater benefit if the World Bank could grant a consolidated loan.

We are not asking advanced countries outright grants though they have got certain advantages in reducing the burden of repayment which a loan entails. But grants had certain disadvantages in that they may not be put to productive but consumption uses. As Mr. Black remarks, "The donor relationship over the long pull may create an atmosphere of inequality and dependence which impairs the ability of the nations to work together. And when money is given away, it is sometimes hard to maintain those standards of effective administration which are essential to the effective use of capital. In contrast loans are apt to lend themselves more readily than grants to business like administration. The savings mechanism and accounting procedures set in motion by sound loans are integral parts of the development process—as much as the capital and the engineering and the construction materials themselves".

It would help our development programmes much if the World Bank and the U. S. A. government would assure us how much they are willing to lend. For 1956-57 India has received approximately $ 60 million from U. S. A. But, Mr. John B. Hollister of the U. S. International Co-operation Administration said that the U.S. Congress is averse to committing aid funds for a period of years and the assistance will have to continue from year to year basis. About private capital he said, "It will move very fast in areas where a reasonable and safe profit can be expected." "Private capital will look for political stability. American capital is not interested generally in a very big quick profit. It is interested in settling down for a long period in the country and is perfectly willing to plough back in the country substantial amount of the profit."

We have been informed that American private businesses are reluctant to invest in India because of certain reasons. The Income tax charged in India was higher than that collected in America and there was the question of double taxation. American investor was also afraid of "ex-propriation" or "nationalisation" of his investments in India, the quantum of compensation to be paid to him being determined by Parliament. He was rather sceptical of this "political determination" of the compensation. India was competing with several other countries for U. S. Investment and unless its terms were competitive the American businessmen might find it more attractive to invest elsewhere. We have to remember the above grounds before we can appreciate the role of private foreign capital.

It has been suggested that instead of having deliberate aid to low income countries, if these could utilise the better terms of trade that occur, capital formation could be aided greatly. "On the basis of raw material prices ruling at the end of 1950, it has been estimated that the primary producing countries would earn in 1951 an extra three or four million dollars for the same volume of export as in 1950". Recent U. N. Reports have drawn the world's attention to this method of financing economic development and have placed great emphasis on the resources which better terms of trade can make available for capital formation in the poorer countries of the world. A rise in the export prices of these countries makes it possible for them to import larger quantities of capital goods needed for their economic advance. If as Colin Clark predicts the terms of trade of primary producers continue to become better in the future, this will give added resources to the needy countries. The great advantage of this method is that it does not give rise to any foreign debt nor to friction of inter governmental loans. But we wonder how this method is going to benefit all the underdeveloped countries. The terms of trade tend to vary from time to time, depending on extraneous factors. It is admitted by the protagonists that from the raw material boom of 1950-51, India derived no net improvement whereas Malaya benefited a great deal. We hold it unwise to depend on this method of capital formation when we are having planned economic development which requires not haphazard, uneven and uncertain foreign exchange reserves.

Our Government seems to evolve a system of deferred payment for goods imported. That is to say the foreigners will have to sell on long term credit. We have been carrying on negotiations with a number of governments and private business to accept deferred payment scheme for the import of capital goods. The condition regarding seven year credit would not apply to a large number of projects. In a large number of cases the payment would actually be made in 3 or 4 years instead of seven years although the initial payments would be low. Payments would be allowed to be made on the dates specified in the relevant import license irrespective of the time when the project came into production, but if the supplies were not delivered according to schedule, the payments would be deferred for a corresponding period. Over this scheme many countries are not enthusiastic and therefore we cannot expect much by way of long term credit to meet our exchange requirements.

There is another scheme which may help us to attract foreign capital i.e. Joint ventures. The leader of U. S. Trade Mission Mr. F. Preston Forbes had stated that there was no industrial field in which Americans could not participate. American businessmen would be willing to participate in ventures that were considered by them to be more profitable, irrespective of whether they were in the public or private sector. There was no limit to the amount of such investment. The leader of the Australian Trade Mission, Mr. John G. Hurley also envisaged Indo-Australian collaboration in a number of enterprises especially engineering industries. He revealed that economic climate in his own country for large scale investment in India was not at present favourable; Australia itself was in need of foreign capital.

In view of the above account it is difficult for us to assume so much of foreign aid. As a large number of underdeveloped countries are also entering the field of planning, the amount of foreign aid that we can expect cannot be optimistically assumed. To a great extent the success of our plan depends on the way in which we productively utilise the amounts received from foreign countries.

There is a proposal that the highly developed countries should each devote

one percent of their national income to finance the development of the whole under-developed world. This is really an admirable proposal but we have grave doubts about its fulfilment. For the last four years the poorer and less developed countries have been pressing for the establishment of a special U. N.'s Fund for economic development with an initial allotment of $250 million. But the response is very cool from advanced nations. Britain has pleaded her inability to contribute to the fund and the U.S.A. have refused to participate. The Russians have agreed in principle and the French have agreed to pay their share. We need not stress the importance for a development fund with no strings attached to its grants. But now-a-days assistance goes primarily to military allies and is based on political considerations. One of the strongest reasons why the less developed countries are anxious that the U.N. should create adequate institutions for transferring capital is that they should not become dependent upon receiving capital from any one of the great powers.

As prof. Viner observes, "More reliance is being placed today on governmental rather than on private international lending both because debtor countries prefer to borrow from government and because private capital shows great reluctance to go abroad ...... Through war lossses, heavy taxation and socialization, the fund of disposable private capital potentially available for foreign investment has been drastically reduced....The special hazards of foreign investment have increased. Many capital poor countries give a grudging welcome to the private foreign investor......There is no justification for more than very modest expectations as to the scale on which governmental foreign investments will take place, in the absence of pressure from political and strategic consideration". We agree with Prof. Viner when he says that "foreign capital in the absence of major changes in the International scene, will make but a marginal contribution to the capital needs of under-developed countries. This makes all the more urgent the fostering of such internal conditions by these countries as will encourage domestic saving and the prudent use of proceeds in the development of productive facilities, material and human".

THE ROLE OF COTTAGE AND SMALL SCALE INDUSTRIES IN INDIAN ECONOMY

By : **M. P. KACKER**

INDIA lives in villages[1] and her civilization is essentially agricultural in character. She had attained a high degree of skill and dexterity in handicrafts and artistic industries at a very early stage of her civilization when she was at the height of her glory and splendour. Skill was handed down from father to son and no technical institutions were required. The simple craftsmen, by their exceptionally deft fingers made marvellous articles that found favour with the royalties of distant countries. History records the wonderful skill of our master-mind weavers, smiths, carvers, architects, builders and designers. Babylon traded with India in 3000 B. C. and the mummies in Egyptian tombs dating from 2000 B. C. have been found to be wrapped in Indian muslin of the finest quality. The "Woven Wind" of Dacca was made of counts above 400 and a sari large enough for a full grown woman could

1. According to 1951 Census, 82.7% of the total population of India lives in villages.

be drawn through an ordinary finger ring[2]. Unfortunately, all is gone now. The ruthless persecution by interested competitors, lack of stimulus, evergrowing poverty and gradual enslavement of the country at the hands of the foreign invaders, rung the death knell to our old cottage industries.

With the attainment of freedom and the coming of popular Congress Government into power conditions have begun to improve now. Although that grandeur is no more existing, yet cottage and small scale industries form an important sector of Indian economy today and we are confident that under the present democratic set-up they will continue to receive the valuable patronage of the Government as well as of public. In this brief article an attempt has been made to bring out the significance of cottage and small scale industries in the economic well being of the country and examine the various steps which have been taken by the Government for their amelioration and progress.

Before initiating the main discussion, it will be worthwhile making a distinction between cottage and small scale industries. In our opinion, cottage industries are those which employ mostly members of the same family and dispense with the employment of private labour. Small scale industries on the other hand do not keep themselves confined within the members of a family but engage private labour from 10 to 50 people. As such, use of private labour rather than power should be the criterion for distinguishing between the two.

Existing cottage and small scale industries may be broadly divided into four classes. Firstly, there are peasant arts and crafts carried on in off seasons of agriculture which are very helpful to the farmers in supplementing their income. Among the important industries pursued by the Indian farmers are hand spinning and weaving, gur making, flour grinding, rice pounding, cotton ginning, rope making, basket making, mat weaving, seri-culture and tobacco manufacture. Secondly, we come across village subsistence industries pursued by village artisans which include the blacksmith, carpenter, weaver, oil-presser, tanner and potter. They supply the simple requirements of villagers. Then, there are village art industries like toy manufacture, carpet weaving, silk weaving, metal work, manufacture of bangles and artistic clay modelling etc. Some of these command overseas markets. Lastly, there are urban arts and handicrafts like embroidery and brocades, gold plated thread, carpets and shawls.

The importance of these industries in the present day economy of our country can be judged by a single fact that while the mechanized industrial sector employs only 2.5 million people in registered factories and mines, at least twenty times that number derive their livelihood from the various cottage and small scale industries mentioned above. Hence, necessary protection and planned development of such industries will open new gates of employment to our frustrated youngmen and redress many of the social and economic evils stalking on our land like poverty, squalor, malnutrition and low standard of living. It will also meet the challenge of India's increasing population which is rapidly expanding at the rate of 1.34 per cent per annum, for the additional population increased every year can easily be absorbed by the gradual expansion of this sector of Indian industry. Moreover, our resources in capital, skill and managerial ability are extremely meagre and we will not be required to import the high grade technical skill and organizing ability once we revitalise the cottage and small scale industries.

2. Buchanan "Development of Capitalistic Enterprise in India" p. 194.

It will be of interest to note that these industries have a conspicuous place even in the advanced economy of U. S. A., U. K., Germany and Japan. In U. S. A., there are about 38,00,000 industrial units with one to four workers while in U.K. 29% of the employment and 19% of the output emerge from units employing between five and thirty workers. In Japan which is undoubtedly the most advanced country of Asia, the silk industry is practically on cottage-industry basis. The skill that the farmers of Japan show in this industry has been highly praised by noted geographers. Dudley Stamp says, "It (the silk industry) has baffled the inventive ingenuity of the West". These facts serve to establish the international character of this sector.

The main problems hampering the development of these industries are (a) Inadequate supplies of raw material, (b) Inefficiency of the existing implements and techniques, (c) Inadequate finance, (d) Lack of marketing facilities, and (e) Competition with large scale industries.

Our artisans are not able to get adequate supplies of raw materials of reliable qualities. Their resources are meagre and having no assets, they are not in a position to offer any security. Their slender financial condition compels them to pass into the grip of middlemen who very often employ them on paltry wages and exploit their sweated labour to the fullest extent. Moreover, only low quality raw materials are available to the artisans, superior qualities being in demand by large scale industries. There is a great scope for utilising the services of Industrial Cooperatives in the purchase of good quality raw materials and in the sale of finished goods at competitive rates. It is gratifying to note that U. P. Industrial Cooperative Association Ltd. which is an apex institution of all industrial cooperatives of this state has been rendering yeoman's service in this field. In Bombay and Madras too such cooperatives have been smoothly functioning.

The second problem arises in respect of old and out-of-date techniques of manufacture. The cottage worker has still the same antiquated implements which were used by his forefathers. There are people who plead for the retention of old techniques for the fear that the new machines or implements which are primarily labour-saving might sound a death blow to the village economy. This view, in our opinion, will not stand the test of the time. For achieving the alluring targets of our Five Year Plans, new methods of production will have to be evolved and greater reliance placed on technological innovations.

Then comes the question of finance. The village artisan is always handicapped for want of capital. He requires money for the purchase of raw materials, equipment and appliances and for the efficient marketing of his products. The smallest village tanner, in order to have work throughout the year, must have a sufficient stock of lime, hides, colours, chemicals etc. Even for small requirements, he is dependent on village moneylender who charges exhorbitant interest. To call him thus an independent artisan is a misnomer.

Efficient marketing and distribution of the products in the best interests of the artisan, is the next important problem. Poor and helpless artisans find it hard to dispose of their products at adequate prices and undertake publicity campaign for their sale. The marketing difficulties, have been to a great extent, removed by the establishment of cottage industries emporiums, and Industrial Cooperative Associations in various states and the National Small Industries' Corporation at the centre. The work of U. P. Arts and Crafts Emporium is really appreciable. It is through the efforts of this emporium that the Calico printings of Farrukhabad, gold and silver brocades of Varanasi and the carpets of

Agra were able to secure markets in London and New York after their display at the Wembley Exhibition of 1924.

Last but not the least is the problem of competition with large scale industries. In some cases, the products of large scale industries are comparatively cheaper, better in finish and more durable than those of cottage and small scale industries. On the other hand, some products require high grade artistic beauty which can be accomplished only by the dexterity of human fingers and not by big machines of large scale production. In these circumstances, if one suggests the sustenance of one sector at the cost of the other, it will be like robbing Peter to pay Paul. The maximum good can be achieved only by making the two sectors complementary rather than competitive. Taking, for example, the textile industry, the spinning process may be done by machines and the weaving by handlooms. In case of agricultural implements or textile accessories, components may be produced on cottage basis and their assembling into final product may be done on a large scale in a factory.

Let us now examine the various measures taken by the government for the amelioration of these industries. An indication of it has already been made while enumerating their main problems. Still, much remains to make clear the role of government in relation to the development and progress of these industries.

The first important step in this direction was taken by the Government in the year 1953 when it finalised to establish three All India Boards as given below :—

1. All India Handicrafts Board to advise the Government on improvements of handicraft industries, promotion of sales, allocation of grants for various purposes to state governments and private organizations etc.
2. All India Handloom Board to recommend grants and loans for ensuring steady and adequate supply of yarn to industries, improvement in design, technical training, development of standards and promoting co-operation among weavers.
3. All India Khadi and Village Industries Board to work out and organize programme for development of these industries and to advise on granting of loans for improving Khadi and promoting its sales and also for scientific and technical operations among weavers.

The Central Silk Board which had been functioning since 1949 was reconstituted in April 1952 and a Statutory Coir Board was set up in July 1954 to promote the development of the Coir industry. The last board to be set up was the Small Scale Industries Board in November 1954 to coordinate the activities of regional institutes for small scale industries, Small Industries Corporation etc. By the end of 1954, the number of All India Boards came to six.

The National Small Industries' Corporation was constituted in Feb. 1955 on the recommendation of International Planning Team on Small Industries in India. The tasks before the Corporation are (a) to serve as an agency through which the indents of government and organized industry are channelised and distributed to small units; (b) to organize chain stores and mobile sales vans for securing wider distribution of the products; (c) to assist the changeover to modern methods of production by selling new machinery on easy instalments; and (d) finally to open up new export markets for small industries' products.

A number of Small Industries Service Institutes is being set up to provide technical guidance and research facilities. Four of these are already functioning in Bombay, Calcutta, Faridabad and Madurai. Moreover, there is a programme of establishing

Industrial Estates i.e. centres where a sufficient number of small units require workshop space and which are situated near wholesale markets.

Another significant action of the Government of India in the sphere of cottage and small industries was extensive investigation of the economic and technological potentialities of a new four spindle hand spinning unit called "Ambar Charkha". On being impressed by the usefulness of these charkhas, the Government have assigned an important role to them. Out of 1700 million yards of cloth to be produced during the Second Plan, 300 million yards will be produced from yarn spun on Ambar Charkhas in thousands of rural homes.

It is a matter of satisfaction to note that the Second Five Year Plan provides for an outlay of Rs. 200 crores for village and small industries as against Rs. 31 crores being the total expenditure on these industries during the First Five Year Plan. The distribution of outlay between handloom, khadi, village industries, handicrafts and small scale industries is respectively Rs. 59.5, Rs. 16.7, Rs. 38.8, Rs. 9 and Rs. 55 crores. The remaining industries share Rs. 21 crores.

According to the new Industrial Policy Resolution announced in April 1956, the Government may take measures such as restricting the volume of production in the large scale sector, reservation in the sphere of production and imposition of cess for supporting village and small industries. Still the government will make efforts to ensure that this sector acquires sufficient vitality to be selfsupporting and that its development is integrated with that of large scale industry. We are perfectly in agreement with the state policy in relation to village and small industries. It is hoped that many more schemes will be undertaken by Government as well as semi-government and private organizations to reach the cherished goal of full employment, rural self-sufficiency and general prosperity, in other words, India's economic emancipation.

12-YEAR PLAN DOUBLES CHINA'S GRAIN OUTPUT

By: **CHIH FU-JEN**

STUDENTS of China's food and population problems, notably those of the Malthusian school, used to pass this country off as a pretty hopeless case. At best a partial solution—and a cruel one too—in recurrent wars, plague et al was advocated. They thought, and many still think, in a country like China never will it be possible to grow enough food for her huge population of 600 millions which, at the same time, is increasing at the top world speed of two percent annually.

A cursory review of the production records shows that China in her peak year before the war produced 150 million tons of grains. The subsequent years following the Japanese invasion, however, saw a steady fall in output. By 1949 the figure was down to 113.2 million tons, a quarter less. But by 1952, three years later, the peak pre-war figure was surpassed by 10 percent. Another three years later the total for food grains alone went up to 174 million tons. Last year, the expected target was not met because of losses resulting from serious typhoon and flood damage, but the figure still rose to 184 million tons.

From the above figures it can be seen that food production has been steadily going up since 1949. According to official sources

the rate of increase is five percent annually. This is considerably higher than the world average of almost three percent as given by the Food and Agriculture Organisation (FAO) of the United Nations. (FAO also estimated, the world population increases at the annual rate of one and a half percent).

Food Rise Outspaces Births

In spite of the speed of her post-war recovery in food output (China's three years against the five to seven years in post-war Japan, Western Germany, France and Italy) and in spite of a wide margin of three percent between her food production and population increase the per capita ration in China is still low. With last year's total of 184 million tons, the per capita figure comes up to only 600 catties (300 kilogrammes). Though much higher than ever before it is only an adequate ration and is still small by Western standards.

Since last year, a new nation-wide effort has been under way to bring about a more rapid increase. It is in the form of a 12-year programme, which is expected at least to double the present production figure. Within the 12 years, even allowing for growth of the population, at the present rate of two percent, to reach 800 millions, the per capita ration will be 1000 catties, three-quarters over the present average.

The plan is officially known as the Draft National Programme for Agricultural Development (1956-67). Aside from more than doubling the food crops' return, the programme stipulates that cotton will be brought up to 4,500,000 tons. (Peak pre-war record, in 1936, was 850,000 tons). Increases in other food crops are called for. Corresponding development in the livestock and fishing industries, in forestry and other allied fields are also targeted.

Through Intensive Farming

It should be noted here that this tremendous agricultural development is to be brought about mainly by methods other than extensive mechanised farming or large-scale reclamation of new arable. The chief means is still, as it has been in the past, intensive cultivation to obtain the highest yield from each hectare of the existing arable.

The programme therefore is a product of the very special situation in China. Here as in most under-developed agricultural countries, there exists a great fund of farming experience but a sad lacking of machinery because of long social stagnation and the consequent low level of industrialisation. Thus any plans of immediate large-scale opening of new land by machinery are ruled out as too expensive and unpractical. The planners therefore chose to take full advantage of this rich fund of experience and the country's vast manpower potential.

The country is divided into roughly three different regions for which three different sets of yield targets are fixed. For the richer areas south of the Huai River and an imaginery line extending to the west the yield of food grains per mou (one-fifteenth of a hectare or roughly one-sixth of an acre) is to be increased from the 1955 figure of 400 catties to 800, a 200 percent increase. For areas north of the Huai and south of Yellow River the increase is from 208 to 500 catties, a 240 percent increase. For areas to the north, from 150 to 400 catties, a 260 percent increase.

Increase in cotton yield is from the 1955 national average of 35 catties per mou to 60, 80 or 100 depending upon the local conditions. The increases here are to reach as high as 300 percent and over.

Upto this point one may well ask whether these are paper or practical figures, or whether the programme is a feasible one as a whole.

Programme Said Feasible

The chief architect of the master plan was Mao Tse-tung. It was first in the

form of 17 points which were then elaborated to become the present 40-point draft after the chief of state had consulted local officials in charge of agricultural production--Communist Party secretaries—from 14 provinces and Inner Mongolia. Views and suggestions were also sought from 1,300 prominent persons such as scientists working in industry, agriculture, medicine, public health and the social sciences, as well as leaders of other political parties.

The programme was submitted to the Supreme State Conference in January last year and made public to the nation the following month. Liao Lu-yen, the agriculture minister who presented the draft to the nation, forecast that the targets can be reached.

One of the foremost requisites given by the minister for the success of the programme is the fact that 90 percent of the peasant families are now in the collective farm, known as the higher agricultural producers' cooperative* in China. Another requisite is the unlimited source of manpower available, in terms of millions of keen souls. The cooperative farm movement as it grows, will free yet more labour or productive work in the farm, provide better organisation and management.

The programme stipulates two main ways of bringing up crop yields in the intensive farming drive.

For the first, ten concrete steps are given: (a) water conservancy projects and water and soil conservation, (b) use of improved farm tools, and gradual introduction of mechanised farming, (c) efforts to discover every possible source of manure and improve methods of fertilising, (d) extension of the use of the best and suitable strains, (e) soil improvement, (f) extension of the multiple-crop areas, (g) planting more high-yielding crops, (h) improving farming methods, (i) wiping out insect pests and plant diseases, and (j) opening up virgin and idle land and extending the cultivated acreage.

For the second, five concrete steps are given. Three of these are aimed at the dissemination of the experiences of the best cooperative farms in the drive to increase crop yields. The rest is widespread introduction of technical knowledge.

Water A Priority Problem

In elaborating these steps, top priority is given to water conservancy. China in the past was almost synonymous with the words "flood" and "drought". Even today large outlays still go every year to fight them. In the course of the 12 years more large water conservancy projects, including the Sanmen Gorge dam which will rank among the world's biggest, will be built by the state. Smaller ones which will blanket the country will be undertaken by the local authorities and the cooperative farms themselves.

The programme says that all ordinary floods and droughts should be wiped out in seven to 12 years.

Underlying the importance of this priority item is the 10 million ton increase in grain output last year—due largely to extensive water conservancy and irrigation work. The irrigated acreage jumped to 500 million mou from the 1955 figure of 390 million. (In 1949 the figure stood at 300 million mou.) Yet this is less than one-third of the total arable under crops.

So will soil erosion be stopped. It has been carrying away millions of tons of fertile top soil each year, resulting also in the silting up of the Yellow and other rivers.

Another priority item is the extension of the multiple-crop area.

* N. B. A higher agricultural producers' cooperative is a fully socialist cooperative farm in which land and all other means of production are commonly owned and members paid according to the amount of work done.

Rice occupies only 26 percent of the total arable but makes up 45 percent of the total grain output. In some areas in the south this high-yield staple fetches in as high as 1,000 to 1,500 catties per mou. With the development of water conservancy and irrigation, the programme says, the present rice acreage will be extended to more northerly climes where the highest yield of wheat, for example, reaches only one-third that of rice.

In the 12 years, it says, the area under rice should be increased by 310 million mou, maize by 150 million mou and potatoes by 100 million mou.

"Evils" to Be Wiped Out

Other points are aimed at raising the peasant's living, sanitary and health conditions. From seven to 12 years, the programme stipulates the following will be wiped out:

Wherever possible all diseases from which the people suffer most seriously-filariasis, hookworm, kala-azar, encephalitis, bubonic plague, malaria, smallpox and venereal diseases.

The carriers of some of these diseases: rats, flies, mosquitoes and, incidentally, sparrows. The last, 44 million of which were killed in the first few months last year alone, is being exterminated as one of the "four evils", not because it is a disease carrier but because each bird consumes five and a half grams of the harvest each day. In the same period close to 29 million rats were exterminated.

Insect pests and plant diseases.

Illiteracy, in even a shorter period, from five to seven years.

Electricity for Peasants

Provided for the 500 million peasants, in the meantime, will be the following:

New housing, electricity, radio rediffusion, telephone and sports fields and facilities.

The world's biggest social insurance scheme—because it embraces 500 million peasants. The scheme is already in operation. Provided for by the cooperative farm system are old people, orphans, the disabled and others who generally have no means or ability of support. The significance is all the more singular since no social security provision of any kind had ever existed at any time in China's history.

Employment for China's remaining over a million unemployed in the city. Co-operative farms in Kiangsi Province, south China, alone asked for half a million last year.

What Success of Plan Means

The success or failure of the 12-year agricultural programme is viewed with the utmost importance in China. Not only solution of the food problem of the 600 million depends upon its success. On it also depends the success of the industrialisation programme. (The last year of the third five-year plan coincides with that of the 12-year agricultural programme).

The success of the programme means:

Sufficient foodstuffs for the 80 million urban population and industrial workers whose number is increasing in equal pace with the speed of industrialisation.

Sufficient raw material for the various industries, especially the consumer goods and other light industrial fields.

A huge market of 500 million peasants, whose living standards have been steadily going up, for industrial goods.

This market, in turn, provides an important source of capital for the industrialisation programme.

Foreign exchange, through the export of traditional and other farm produce, needed for the import of high precision instruments and other machinery and equipment which China is yet unable to make herself.

First Year's Results

Exactly one year after the programme was initiated, Teng Tse-hui, the deputy Premier, told the National Model Agricultural Workers' Conference in February, "We are convinced that it is absolutely possible to reach the grain and cotton targets outlined in the 40-point programme." Another high official, Chen Chen-jen, reporting to the Chinese People's Political Consultative Conference which was concluded in Peking in March, said that the yield targets set for the 12 year period were already reached not only by many individual cooperative farms, but by whole districts and counties. By the end of 1956 there were 17 such counties.

Liao Lu-yen, Agriculture Minister, said, since these high yield targets were already reached by so many districts even during the first year, there is all the more reason to believe that the programme will be a success before the 12 years run out. Because as time goes on more factors contributing to increased crop yields will enter into the picture. They are irrigation, water conservancy, improved technique, better management, chemical fertiliser and mechanised farming.

When available, he said, at least 20 million tons of chemical fertilizers and from 1,200,000 to 1,500,000 standard 15 h.p. tractors are needed every year. In the last few years, only a small number of tractors has been available, and most of it was used for reclamation of new arable.

New Factor-Birth Control

Since last year a brand new factor has entered into the picture. Proponents of birth control have been vigorously putting forward their views in the belief that living standards and the per capita ration, in particular, will be increased much faster and higher if effective controls in births are introduced. By this spring this subject was officially put on the agenda of the People's Political Consultative Conference where all the pros and cons were weighed. The People's Daily, organ of the Communist Party, came out openly to advocate it. The Minister of Health, Madame Li Teh-chuan, gave it formal endorsement, though a bit reluctantly.

So far the per capita ration has been figured on the premise that the 600 millions will grow unchecked at the rate of two percent. By 1967, the last year of the present programme, there will be presumably 800 millions dividing the expected 400 million tons of food grown. That comes up to 1000 catties per head. However, as the growth of population is going to be checked, the per capita ration is expected to be much higher than 1000.

CEILING ON HOLDINGS

By : **S. N. JHA**

TO fix a ceiling on holdings, no doubt, is a vital question which is rightly receiving attention of the economic planners, as it is a factor to maximize agricultural production and to some extent increasing employment by bringing under intensive cultivation lands which otherwise have been producing nothing or very little. The process is calculated to bring about rationalization in asmuch as the land will be released from held up to those cultivators who are well conversant with the techniques and business of agriculture. Most of the Provinces have already enacted legislation providing a minimum and a maximum holding which a cultivator can have in future.

For instance in U. P. these have been fixed to be $6\frac{1}{4}$ and 30 acres respectively. The minimum so fixed prevents further sub-division, thereby checking increase of uneconomic holdings.

But the real problem is as to what should be this maximum area that will provide opportunity to a cultivator's family for a decent standard of living. Kind of soil, fertility, climatic conditions, location and type of crops grown etc. are the factors which are so variable in the country not only from one province to another, but from district to district, tehsil to tehsil, village to village, nay, from one field to another in the same village. Taking these factors along with several others such as the nature of fluctuations in price structure of agricultural commodities, natural calamities not infrequently taking place in some part or the other, to decide this target is a very baffling task. It is not an exaggeration if one may add to these, the havoc of artificial changes in the weather conditions suspected to be due to experimental explosions of atomic and other deadly weapons that are fast increasing. Though the experts do not freely ascribe the changes in weather conditions to these explosions yet a layman in the countryside has started attributing the changes to these very explosions since abnormalities in weather conditions have been found to be coinciding with these explosions. During the period from May 1956 to May 1957 it has been noticed that there have been unusual untimely rains and hail storms and cloudy weather thereby affecting agriculture very adversely in many parts of the country so much so that one reads in newspapers increased demand of declaring one region after another as scarcity areas and more and more help is sought for.

So many definitions of economic holding have been given by various authors that it has become a problem of only academic wrangling. An ordinary man fails to arrive at some definite conclusion. The Second Five Year Plan envisages uniform fixing of maximum holding and suggests such a unit in terms of family holding, which is defined by them as, "भूमिका वह टुकड़ा जिससे कुल १६०० रुपये सालाना की सकल आमदनी हो या (परिवार की मजदूरी मिलाकर) जिससे १२०० रुपये साल की शुद्ध आय हो तथा जो एक हल की जोत से कम न हो।"

This maximum is suggested to vary from three to six such family holdings depending upon the number of members in a family. If an average family is supposed to consist of, say, 5 members, though such is a rare case in India, and if three times of the family holding is regarded as the maximum holding for such a family, the net income comes to Rs. 3600/- a year which means Rs. 720/- per head per year or Rs. 60/- per head per month. On theoretical basis it may be sounder but apart from the adequacy or otherwise of the above unit the problem of deciding actual number of acres to produce this income in different localities yet remains to be solved.

In deciding such an arithmetical figure there are a few important problems to be borne in mind. One of them is that though the system of joint family is breaking up gradually yet the size of family is probably much larger in India than perhaps in any other country. It appears, therefore, appropriate to have a census of families and to base the ceiling on actual and not an assumed family. Secondly, the improved technique and methods of cultivation, for various reasons, will take some time before the cultivators actually are able to adopt them. Hence the average production not of scientific farming but of something in between the existing one and the expected yield may be taken into calculation of income, derived from family holdings. Thirdly, some margin to counteract the natural calamities, as also unfavourable circumstances in which

an average Indian cultivator is placed, such as absence or unsuitable communication, lack of facility of irrigation, transport and marketing etc. may be given by way of fixing some thing say 25% more of the area in a family holding than actual calculation. Fourthly, the persons deciding a family holding must not only consist of academic planners and economists but actual cultivators. Though the views of cultivators are taken into account by the planners while deciding these problems, it is presumed that average farmer being illiterate only well-to-do farmers who were the other day big zamindars or malguzars are associated with the planning who may not be able to give a good representation of farmers. On the other hand the other extreme, that is farmers who though educated yet constituting the lowest ladder may also not be able to present the correct picture. It would be much better if representative farmers are enlisted from each locality and a sort of regional conference is held to elicit their opinion as to what should be the maximum holding for a family. Thus while deciding the size of maximum holding the opinion received from actual farmers may be taken into consideration.

In fact the size of ceiling should be liberal initially and it may be reviewed after some period, say ten years.

The question of fixing a ceiling on land is not so easy as it may appear at first sight, however laudable the proposition may be, and it is likely to affect adversely the agricultural economy as well as mass psychology if hurriedly effected.

After all the farmers, who are known as the back-bone of India, are not only to be fed adequately but they are also to be enabled to have increased purchasing power to spend reasonably on consumable articles as well as to have capacity to save for the rainy day and to have capital goods to better their business by adopting scientific improved techniques and methods.

MECHANISATION OF AGRICULTURE IN INDIA

By : **G. R. KOPPIKAR**

AMONG the various problems arising out of the occupation of agriculture in India, if there is one the controversies connected with which have confronted those interested in the occupation to the extent of defying a satisfactory and convincing solution to this day, it is the aspect of the part played by machinery and its importance in agriculture. The terms 'machinery', 'Mechanisation' etc. are too vague to be intelligible in reaching a decision in solving this problem in the absence of a sufficient elucidation of the terms. Any arrangement of instruments made to facilitate work may come under the term 'machine', and in that sense very few occupations, if at all there are any, can be said to have escaped mechanisation. Generally, however, 'mechanisation' as related to agriculture is interpreted as the introduction and the common use of heavy, time-saving and labour-saving devices which are relied upon for doing the various agricultural operations in preference to manual and animal labour, and to the exclusion of the commonly used handy, light implements and tools, when this problem is discussed.

Man is said to have taken the first step towards civilization when he gave up the roaming and nomadic life in quest of food and scratched the surface of the earth

with the help of a crooked stick, put some seeds in the soil and thus grew his own food in cooperation with the producing powers of the soil. The settled life and increased reliance on these powers of the soil in meeting the daily needs in life injected new ideas in man in the direction of increasing production from the soil, the consequences of which were, among other innovations, the construction and increased use and improvements in the instruments used in the occupation. Thus, depending upon the various social, geographical and economic peculiarities, the different regions in the world exhibit the advance made by them in differing degrees in connection with the instruments used in agricultural practices. Especially in the wake of the industrial revolution and as its aftermath, the western countries saw a great deal of the introduction and reliance on machinery in the various occupations and the activities in daily life. Agriculture also did not remain untouched and mechanisation has reached a very advanced stage in western agriculture; for instance, "in the United Kingdom there is one tractor to every 87 acres under cultivation, in the U. S. one to every 118 acres, in Russia one to 100 acres and in Australia one to every 210 acres".* In contrast to the occident, the orient presents a very different picture. "In the countries of the Far East, there is only one tractor to every 33,000 acres under cultivation".* However, various reasons have influenced the regions in the East into adopting machinery in agriculture, and the tendency is seen ever on the increase with the advance of time. Whereas tractor is not the machinery proper that is used directly for the different farm activities and is only a machine used for the purposes of the traction of implements such as very heavy ploughs, combine harvestors, mechanical seed drills, spraying and dusting machines etc., its use implies the use of these machines, and obviously tractor has symptomised these machines.

The increasing popularity of heavy machines and tractors in agriculture owes to certain spectacular performances, the achievements of which have unfailingly left a lasting impression on the course of crop production and other activities related to it, and so far as these aspects are concerned mechanisation does justify the high esteem it is held in in the farming world. There can be no two opinions about the advantages the heavy machinery confers on agriculture in reducing the drudgery involved in certain laborious tasks which are sometimes beyond the human capability. Where there are no such hard tasks to perform the machine brings about a more efficient turnout of work of a certain magnitude and more even in quality in less time and with less labour to be put in than can the human being do with or without the implements and tools operated with the help of the animal power. Undoubtedly in any sphere the efficiency of the instruments contributes immensely in stepping up production and agriculture is no exception. Mechanisation of agriculture, thus, enables the exercise of promptness in the various seasonal operations without loss of time so very valuable in an occupation greatly resting on season and climate and also enables to take advantage of the climate conditions that are sometimes exceptionally favourable. The increased efficiency in proportion to mechanisation is indicated by the experience that "in the period 1925-35, in England and Wales the manual output on farms increased by approximately 18%"[2]. The comparative efficiency of hand labour and mechanical cropping methods in the production of wheat as shown in table 1 tells its own tale[2].

Table 1

Year	Method	Man-hours required
1830	Sickle and Flail	57.7
1896	Binder and Stationary Thresher	8.8
1930-41	Combine Harvestor	3.3

(2) D. T. Brown–Rural India (Jan. 1950)

* Australian Agricultural Newsletter (Release no. AGN/418)

The superiority of the tractor over the the bullock in the efficiency in work can be gauged by the fact that "the average ploughing rate by bullocks does not exceed 0.56 acre per eight-hour day; the wheeled type tractor has a ploughiug rate of 0·64 acre per hour"[2], thus indicating the working capacity of the type of tractor in question to be more than nine times that of the bullocks.

How by saving the labour with the help of machinery in agricultural production the per capita income can be increased is shown by the calculation shown in table II, based on the practical experience in the conditions prevailing in Bengal[3]. The two farms *A* and *B* are assumed to be of equal area (100 acres) and the produce on both of them to be 2000 mds. of wheat which would fetch @ Rs. 3/-per md. an income of Rs. 6000/-.

(3) Principal S. P. Bose—Modern Review (August 1942)

Table II

	A (non-mechanised)	B (mechanised)
No. of men working	10	1
Cost of production	Rs. 2500 (@ Re. 1/4/-per md.)	Rs. 4500 (at Rs. 2/4 per md.)
Profit	Rs. 6000 − 2500 = Rs. 3500/-	Rs. (6000 − 4500) = Rs. 1500/-
Earning by the labour	Rs. 525 (@Rs. 5/4/-per acre)	—
Total profit.	Rs. 3500 + 525 = Rs. 4025/-	Rs. 1500/-
Income per person	Rs. 402/8/-	Rs. 1500/-

Experiments carried out in the Madras State in threshing paddy lend support to the advantages of using a tractor of a particular type over the use of bullocks from the view-points of economising time, efficiency of work and increased income in terms of the produce as well as money. The quality of the grain and straw obtained after the operation was superior in the case of the work by the machine than that by the animals, it being cleaner and without any damage in the former case.

Table III gives the details of the financial aspect of the two experiments[4]. The total of the expenditure in both the cases together in the case of the tractor and bullocks is Rs. 275 and Rs. 1130/- respectively which is in the ratio of 1:4.

(4) The Madras Agricultural Journal (Vol. XL, No. 8)

Table III

I. **Treshing 700 bags of grain** (by Kamineni Farming Corporation, Gudivada)

A rubber tyred Tractor	Rs.	a.	p.	Bullocks	Rs.	a.	p.
Time – 43 hours				Time 120 hours			
Fuel – 16 Gallons HSD.	28	0	0	20 Bullocks	360	0	0
20 Men per day for four days	160	0	0	10 Men per day for 12 days	240	0	0
Driver's wages	8	0	0	Loss due to feeding the produce by bullocks	300	0	0
Total :—	196	0	0	Total :—	900	0	0

II Treshing 200 bags of grain (at Kokinada)

	Rs.	a.	p.		Rs.	a.	p.
8 hours working (@ Rs. 8/— per hour)	64	0	0	30 pairs (@ Rs. 2/- per pair)	60	0	0
10 Men for shifting of the produce at Re. 1/8/-	15	0	0	30 Men (@ Re. 1/8/-)	45	0	0
				Loss of 5 bags of the produce	125	0	0
Total :—	79	0	0	Total :—	230	0	0

Another experiment regarding the same operation carried out in a specific time limit using the wheeled type tractor and the bullock power leads one to the same conclusion as regards time, efficiency and economy involved in the working, as also the quality of the resulting produce. 1-2 men were necessary for stirring and spreading the produce in the case of the tractor-work. Apart from the working on a single threshing yard, the same tractor was used on two threshing yards so as to enable the spreading of sheaves on the threshing yards, this work being alternated with the working of the tractor without any waste of time and stoppage of work by the tractor unlike in the case of the operation restricted to a single threshing yard. The comparative statement of work in all the three cases is shown in table IV [5]

(5) T. P. Shanmuganainar–The Madras Agricultural Journal (Vol. XLII, No. 2)

Table IV

	Tractor Threshing		Cattle threshing
	Single threshing floor	Double threshing floor	
Quantity threshed in 8 hours	Produce of 8 acres	Produce of 16 acres	Produce of 4 acres
Shedding of grains	100%	100%	95%
Shedding of chaff	99%	99%	75 %
Cost of threshing the produce of 1 acre	Rs. 2/4/-	Rs. 1/2/-	Rs. 1/8/-

An experiment carried out at the Agricultural College at Poona to compare the working of a Zector 25 tractor and of bullocks in cane crushing reveals the same advantages, the quantity of cane crushed being very nearly the same. The details of the experiment are given in table V.[6]

Table V

	Tractor in			Bullocks in ordinary speed
	1st gear	2nd gear	3rd gear	
Extraction	59.9%	58.0%	59.0%	56.9%
Time in hours and minutes	1-59	1-25	1-5	2-36
Actual extracting cost (Pay of driver, cost of fuel and lubrication, labour for feeding cane and removing begasse, and feeding of bullocks)	Rs. 4/4/-	Rs. 3/8/9	Rs. 3/3/-	Rs. 4/14/-
Approx. saving per acre (40 tons of cane)	Rs. 25/-	Rs. 53/-	Rs. 67/-	—

Deep cultivation with the help of heavy machinery enables the completeness of operations such as preparatory tillage, intercultivation and weed control in fewer operations ultimately leading to quickness of farming operations, and this in turn saves the multiplicity of labour and cost of cultivation. Apart from the advantages of mechanisation mentioned hithertofore, it is claimed that an increase in the yield of crops can be traced to deep-cultivation practices with the help of the tractor as shown in table VI.[7]

(6) Dr. B. A. Chougule, V. H. Choudhari and K. V. Pathak-(The Farmer-Vol. VI, No. 6)

(7) शेतकरी (June 1949)

Table VI

Crop	Increase in yield (%)
Maize	40 to 50
Bajri	15 to 20
Paddy	15 to 20
Gram	10 to 15
Wheat (dry)	15 to 25
Groundnut	30 to 40
Jowar (Rabi)	30 to 40
Wheat (irrigated)	30 to 40

Whatever has been said in the foregoing portion of this paper in the light of the actual experience of various types is naturally bound to lead one to the obvious conclusion that an allround mechanisation of agriculture in India will confer unfailing blessings on the Indian cultivator culminating in the growth of prosperity of India, she being a predominantly agricultural country comprised of, according to the All India Census of 1951, 69.8% of her population connected directly or indirectly with the agricultural occupation. However, a hasty conclusion in this matter, as in other cases, without giving a due share of a serious consideration to the other aspects of the introduction of machinery scarcely does any justice to the framing up of the policy in the right direction aimed at the welfare of the country in general. This naturally leads one to the inevitable assessment of the other side of the topic, viz. whether there are any disadvantages following the introduction of heavy machinery in agriculture in the conditions existing to-day and in those likely to come to our lot in the future. It is only after considering seriously both the aspects of the problem that conclusions can be drawn which suit the conditions peculiar to India, and thereby the way to the prosperity of agriculture in particular in India and that of the whole nation in general can be paved.

Conditions in the West

The benefits conferred by the heavy machinery in the western countries have made it so very popular there that large scale mechanisation of agriculture has become an automatic choice for the cultivators there. A careful peep in the Socio-economic aspects of the occupation in those regions would reveal the position highlighted by the comparative thinness of population as a whole, limited and costly labour, large stretches of comparatively fresh and hence more productive areas of land classed both as developed and undeveloped for crop production, high standard and balanced agriculture, high percentage of literacy and high level of technical knowledge vital to the intricacies of any progressive occupation, a bright picture of finance and capital and so on which enjoy a formidable say in deciding the policy in regard to the extent to which crop production can be made to lean on mechanisation.

Conditions in India

India is the most thickly populated country in the world, next only to China, with 15.5% of the world's population as also one of the oldest with agriculture as a predominant occupation from times immemorial with the consequence of very small portion of land that can be called as virgin culturable waste allowing for the minimum requirements of forests and other industries and habitation. The population in India is more than the combined one of North and South America, twice that of Africa, 44 times that of Australia, 1.8 times that of U. S. S. R., 2.4 times that of U. S. A. and 7 times that of U. K.[8]. The Man-land ratio in India compared to that of some western countries is a pointer towards the pressure of population in India. Population supported by 100 acres of land in various countries is as under[9]:—

U. S. A.-6	Czechoslovakia & Hungary-24	Rumania-30
		Yugoslavia-42
Poland-31	Bulgaria—33	India-148

(8) A. Bose – Modern Review (Sept. 1953)
(9) Prof C. B. Mamoria – Rnral India (Vol. XIV. No. 1)

The slow rate of economic expansion has failed to keep an adquate balance between the pressure of population depending on agriculture and other industries the consequences of which have led to the accumulation and overcrowding of the rapidly multiplying population in rural areas. The all-India census of 1951 has revealed that 82.7% of the population occupies the rural areas[8]. According to the census, the total population of India including that of Jammu and Kashmir and part B tribal areas of Assam is 361.8 millions which shows a net increase of 42.06 millions from 1941-51 and an increase of 51% in the 50 years from 1901 to 1951[9]. These facts clearly show the trend of the population in India towards a steady and continuous increase, a situation which has worsened by the ill distribution and confinement of the population to some particular areas leading to a great strain on the economy of the country with an unbalanced relation between the various industries and agriculture to which owe widespread unemployment, poverty and low standard of living.

Poverty amongst the population in India is too well-known to need any emphasis. A passing reference to table No. VII explains in general this aspect[10]. The per capita National Income of some countries (1949) which was calculated in dollars has been expressed as the U. S. A. level which commands the highest per capita national income viz. 1453 dollars.

Table VII

U. S. A.	100.0
Canada	59.9
New Zealand	58.9
Switzerland	58.4
Great Britain	53.2
Denmark	47.4
Norway	40.4
Belgium	40.1
France	33.2
Ireland	28.9
Israel	26.8
Czechoslovakia	25.5
Argentina	22.8
Russia	21.2
E. Germany	20.6
Poland	20.6
Rumania	19.2
Hungary	18.5
Bulgaria	10.3
Labanon	8.6
Egypt	6.9
Syria	6.9
Iraq	5.8
Ceylon	4.6
India	3.9
Pakistan	3.5
Saudi Arabia	2.8
Burma	2.5
Siam	2.5
China	1.8

(10) Modern Review (Dec. 1954)

In the recently published Giri Committee's Report on Agricultural Labour which "forms the largest single sector of India's labour force (nearly 70% of the population)" underlines the same dismal features about the widespread poverty amongst the people of India. The salient points of the report are as under[11] :—

(a) Agricultural families are employed for only 218 days in a year.

(b) The average annual income per family is Rs. 447/- (Rs. 104 per capita) as against its equivalent of each worker in the organised industry of Rs. 1,111/8/-.

(c) The average primary expenses of each agricultural family are

Food -	Rs. 393/-
Clothing -	Rs. 29/-
House rent and repairs -	Rs. 4/-
Fuel and Lighting -	Rs. 5/-
Services and Ceremonies -	Rs. 7/-
Miscellaneous -	Rs. 30/-
Total	Rs. 468/-

(11) M. V. (Harijan Weekly - 3-12-55)

Thus, the regular increase in the average expenses over the average income shows that the agricultural families are living beyond their means and are obviously forced to run into debt.

(d) The low standard of the diet of the workers supports the argument about their poverty. "The diet mainly consists of boiled rice or chapatis of wheat or millet or other cereals supplemented by a little pulse or vegetables. Some amount of fish was consumed in the riverine areas. The consumption of milk and milk products was almost negligible except in some states in the North and N. W. zones."

(e) The nutritive content of the diet was far below the calorie requirements as also in protective food elements.

According to Sir John Megaw, in India only 39% of the population is adequately nourished, 41% poorly nourished, and the remaining 30% eat very poorly balanced deficient diet.[12]

The all-round development and progress in the economy of the country as envisaged by the Five Year Plans are the goals whose realisation yet needs a patient waiting and calls for a great restraint from the common man for many years to come even taking for granted a smooth passage for the implementation of the Plans.

The manufacture of heavy machinery with all its complications and intricacies naturally means a high cost of production which in its turn calls for a heavy investment in its purchase. Even after its purchase a greater care is needed in its maintenance which includes periodical repairs, regular oiling and lubrication. If strictly systematic accounts are to be maintained they would include the interest on the investment and depreciation in the value of the machinery. All these together become too heavy a burden to the cultivators in general in India to make the regular use of the machinery an economic proposition. To make the matters worse, the agricultural credit system has its limitations and drawbacks. In India, "the cooperative credit societies cater only for about 3% of the cultivator's needs"[13], compelling him to look to the notoriously exploiting money lender for succour. Here, it would not be out of place to make a brief reference to the Agricultural Credit system in U. S. A. Three types of loans are regularly made available as and when needed by the two institutions viz. Farm Security Administration and Farms Home Administration as follows[14] :—(a) For actual purchase of large farms; these loans bear only 3% annual interest and are refundable in instalments in 40 years. (b) Small term loans of the duration of 1 to 5 years at an interest of 5% per annum, the period for refunding the loans completely depending on the general financial position of the borrower and the nature of work for which the sum is meant. (c) Loans extended to meet the problems connected with the supply of water to the poor lands and desert areas of the 17 states in the western parts of U. S. A.

The climatic and labour problems connected with crop production make a case for leaning on heavy machinery in regions with too severe climate to allow a successful solution of the problem in the occupation entirely by the human force aided by the common tools, implements and animal force prevailing at present and in regions having a thin population. Both these conditions are conspicuous in India mostly by their absence. On the other hand the over-population in the East has evoked the remarks from the Economic Commission for Asia and Far East that "where it is possible to hire manual labourers at a low

(12) P. C. Raheja and D. K. Misra (Rural India – Vol. XV, No. 11)

(13) Prof. R. K. Sharma (Rural India – Vol. XIX, No. 1)

(14) किर्लोस्कर (July 1949)

wage the introduction of expensive machinery is made uneconomical if the same labour can be performed at all by hand with or without the aid of animal power"[13]. This remark is justifiably applicable to the conditions of an abundance of cheap labourers in India as based on the information supplied by Shri Jabir Ali that in contrast to the widely mechanised U. S. A. where the average daily wages are Rs. 20/- to Rs. 30/-, its opposite in India works out to only Re. 1/- to Re. 1/8/-[15]. According to the census of India (1951), out of the 69.8% of the total agricultural population only 1.5% constitute "non-cultivating land-owners, agricultural rent-receivers and their dependents" which means 68.3% of the total Indian population contribute their labour in agriculture[8]. If the large section of the labour-force connected with the 30.2% of the total non-agricultural population is added to this, the abundance of the class of labourers can easily be visualised.

(15) Shrs Vithaldas Kothari લોકજીવન Vol. IX, No. 2

(To be continued)

FRUIT PRESERVATION IN INDIA

By : **Prof. PRAKASH CHANDRA TRIPATHI**

FRUIT, an important article of commerce, is grown all over the world. Formerly, the demand for fruit was confined to the outlying areas as it could not stand distance and time and therefore, it was not an important item of foreign trade. But the invention of cold storage methods, and the introduction of fast transportation system have greatly helped the movement of fruits from place to place.

For commercial purposes, fruits of tropical and temperate regions are important. Banana, mango, date, guava, pine apple, cocoanut and melon are some of the chief fruits of the tropics. Grapes, oranges, lemons and apples are some of the important temperate fruits. In India where both temperate and tropical climates prevail, all these fruits are abundantly grown. The vast areas in the foothills of Himalayas, from Kashmir to Assam are not only suitable for temperate region fruits but also for varieties of fruits which are generally grown in lower altitudes. These regions afford an additional advantage in that the growers in these regions have no alternative to horticultural crops; for instance, farmers in the foothills of Assam, have either to take to cultivation of oranges, pine apples or other suitable horticultural crops or allow their land to turn into forest.

But the development of horticulture envisages the need for simultaneous development of the preservation industry. One is inseparable from the other. Larger production can only be profitable to the primary producer if he is relieved of the gluts during peak periods of production, saved from low prices below the economic return and ensured against hazards of loss through spoilage in transport of his produce. All this can be achieved if the preservation industry is developed on right lines.

The fruit and vegetable preservation industry can be moulded to suit any pattern of development - cottage, small-scale or large-scale. The scope of employment in this industry is greater as this industry employs more men than machines.

Further, the importance of the industry is also great in increasing the supply of protective and preserved foods during floods and other emergencies and for bringing about greater diversity in the pattern of agriculture.

At present only 0.12% of the production of fresh fruits and vegetables is utilised by the industry and nearly 15 to 20% of the production goes waste for lack of transport and preservation facilities. The existing yearly production of preserved fruits and vegetables in India is estimated to be only 20,000 tons valued at Rs. 2.73 crores which compares very poorly with 6 million tons in U. S. A., 4,18,000 tons in U. K., 3,60,000 tons in Canada and 1,58,000 tons in Australia. Even in a small country like Malaya, where the conditions cannot be said to be more favourable than those in India, the estimated production of canned fruits alone in 1952 was 14,000 tons against the world production of about 10 million tons in the same year. At the existing rate of production, the consumption of fruit and vegetable products in India is hardly 2 ozs. per head per year while the per capita consumption of canned fruits and vegetables in U. S. A. is 86 lb., in Canada 57 lb., in U. K. and Australia 20 lb. each per year.

Problems

Among some of the major problems which retard the growth of this industry are:—

(1) Lack of credit facilities.

(2) Want of adequate protection.

(3) High price of sugar and containers which is about double the price which fruit and vegetable preservation industries in the U. S. A. and Austaralia pay.

(4) Several items of excise duty and taxes.

(5) Lack of proper horticultural activities in big cities and towns where the town expansion schemes are gradually eating up the lands which were being used for fruit growing.

Industry in the Second Five Year Plan

One of the more important aims in the agricultural sector during the second plan is to increase the production of fruit and vegetables. The plan allots Rs. 9 crores for promoting fruit and vegetable cultivation against Rs. 1 crore provided in the first Plan. It is proposed to advance long-term loans to farmers for bringing new land under orchards and also to provide short-term credit for rejuvenating existing orchards. For making plants and seed of suitable variety and quality available, new nurseries are to be established. The plans of States envisage the rejuvenation of about 500,000 acres of existing orchards and the growing of new orchards to the extent of 200,000 acres. Considerable emphasis will be placed on building up marketing cooperatives of fruit and vegetable growers. The plan also provides for the development of the fruit and vegetable preservation and canning industry through loans for establishing canneries and cold storage plants. The Government has laid down a production target of 50,000 tons of canned fruits in the second Plan period.

AGRICULTURAL PROPAGANDA AND EXTENSION WORK

(A Historial Review

By : **H. M. DESAI**

1. IT was by about the end of the last century when the agricultural department was set up by the Bombay State that the Agricultural extension work, formerly known as Agricultural Propaganda, came into existence.

Initially, a District Agricultural Officer, who was popularly known as a D. A. O. (District Agricultural Overseer), was put in charge of the propaganda work in the district. He worked under trying conditions and most of the D. A. O's had neither a separate office nor a clerk nor a field assistant, nor even a peon to assist them in their work in the districts.

The D. A. O. drew his own programme and worked single handed. His work was, however, inspected by a Divisional Deputy Director of Agriculture, who, in cases where his charge was a large one, was assisted by an Inspector of Agriculture.

The Director of Agriculture, was the head of the department and directed the district propaganda work from his office in Poona.

2. The facilities for higher training in Agricultural sciences were extremely meagre. Courses at the University level were provided only at the begining of the century. Before that time, agricultural training was given either at Baroda, Madras or at Pusa, at a diploma level. Full fledged University degree course was established at Poona in the first decade of this century and the first batch of graduates, with a B. Ag. degree, came out in the year 1910. The Agricultural College at Poona, under the capable Principalship of Dr. Harold H. Mann, provided the necessary training in Agricultural sciences and practices. The college commenced work with only three full professorships i. e. in Agriculture, Agricultural Chemistry and Agricultural Botany. For all other subjects there were either assistant professors or lecturers.

Before the institution of a B. Ag. degree by the Bombay University, there was what was known as L. Ag. degree course which was of a very short duration.

3. Thus the D. A. Os were agricultural graduates who had received basic training in Agricultural sciences and practices at Poona Agricultural College.

There were also agricultural stations or farms in each of the divisions of the Bombay State, where under guidance of experienced men fresh recruits were trained in farming practices, both local and improved. No fresh graduate was given an independent charge of the district propaganda work, unless he had sufficient training of the farm. This gave him necessary self-confidence and equipped him for the field work where he was called upon to take up the the charge of a D. A. O.

4. It was one of the duties of D. A. O. to introduce the Agricultural improvements which had been worked out in the laboratories and on the farms.

As a first step in this process, he had to organise trials of new methods at the various centres in the district. If the methods proved successful he was expected to hold demonstrations and show to the farmers on spot, the differences in and the advantages of the improved methods over the local practices. This was the educational part of the propaganda work. Demonstrations on a large scale were also held on Government farms.

At the time of demonstration, the difficulties if any raised by the farmers were explained on the spot. As a rule demon-

strations in the districts were held only after the results of the trials for two or three seasons were considered satisfactory for further expansion work. It was very difficult for a D. A. O. to contact the farmers all the district over. Help of the Revenue Department was therefore sought for the purpose. Gradually the agricultural department realised this weakness in the propaganda work in the district set up and were specially seized of the fact that there were no arrangements for any extension work. If an improvement was found successful a leaflet was published in the regional language and was distributed free through the agency of the Revenue Department. It was however generally realised that, written word had very little value as the leaflets did not even reach the farmers who were in addition, mostly illiterate.

(5) After the introduction of the new constitutional reforms at the end of the first world war, the Agricultural departments in the states were placed under the charge of popular ministers. Sir C. V. Mehta was the first popular Minister for Agriculture and Co-operation in the Bombay State. A shrewd business-man that he was, he quickly realised this weak spot in the district work and formulated a scheme for organising the farmers at a taluka level in an organisation known as T. D. A. (Taluka Development Association).

Any farmer, paying a fee of 0-4-0 a year, could become a member of a T.D.A. The district and taluka local boards gave small yearly grants to the associations. The Government also gave a grant of Rs. 1000/— a year to a new association in the initial years. Individual grants from well-to-do farmers were not uncommon. Thus financial help enabled the T.D.A. to maintain a field worker who carried on field demonstrations and undertook the distribution of improved seeds, manures, implements etc. The Mamlatdar of the taluka was a chairman of this association and a D.A.O. with non official colleagues worked as its secretary.

Where service of a suitable field assistant was secured, the work of a T.D.A. under the guidance of a D.A.O. progressed satisfactorily. Elsewhere it did not make any head way. It was also proposed to utilise the services of cooperative societies for the agricultural propaganda work. Societies in the Khandesh district did helpful work in this sphere. In a few districts there were district agricultural associations. They organized shows periodically and did some propaganda work though not very effectively.

(6) The report of the Royal Commission on Agriculture, which was appointed in 1926, changed the whole basis of the agricultural propaganda work.

The Royal Commission recommended that, the basis of the propaganda work should be the improvement of conditions of the farmer from all its aspects and not merely the introduction of agricultural improvements as was being done there. Government accepted this recommendation of the Royal Commission but no practical effect was given to it as the country was under the grip of a general depression which was world wide in extent.

7. In the year 1936, when the popular governments assumed office in the states, this question as a part of general welfare of the peasants, again came to the forefront. After a general discussion at a high level, the agricultural department proposed reorganisation of the agricultural propaganda work by suggesting an integration of agricultural propaganda and rural co-operation, the later being the vehicle of real expansion work.

The cooperative department submitted its own scheme for the reorganisation of the district work and this was finally accepted by the government.

As a result, the propaganda work of the agricultural department was separated and handed over to the co-operative department by instituting the post of a Special Deputy Director who worked under the general supervision and direction of the Registrar of Cooperative Societies.

8. When the popular governments resigned at the beginning of the 2nd world war, the Advisers' regime came in and they took charge of the administration. Sir H. F. Knight became the adviser in-charge of the agriculture, the cooperation and the revenue department in the Bombay State. Being not satisfied with the progress he further reorganised the district work by taking over the propaganda work from the cooperative department and placing it under the revenue department. The aim of this was to vitalise the propaganda work. After a couple of years of experience, this work was again taken away from the revenue department and was handed over back to the Agricultural Department it being found that satisfactory progress was not made under that department. It was the opinion of experienced agricultural workers, who had worked during this period in the propaganda section that the agricultural department was the only competent department to deal with the agricultural propaganda and expansion work on account of certain technical and other reasons of aptitude. To tag on this work to any other department was therefore an unnatural and a retrograde step.

9. During the second World War years and for sometime thereafter (till the first Five Year Plan was launched), the propaganda work remained with the Agricultural Department.

As the 2nd world war progressed food crisis began to develop. To meet the shortage of food grains, rationing was started in the Bombay State it being a deficit food crops area because of its industrial development. The Bombay Agricultural Department was first in this country to launch "The grow more food crops' campaign". As a result of this campaign many schemes for increasing food production were started. These included schemes for the distribution of improved seeds, digging of compost pits to increase the availability of orgranic manure, distribution of oil cakes as munure, distribution of ammonium sulphate, digging of new wells and repairs to old ones, combating of pests and diseases etc.

The necessary corollary was the expansion of the propaganda staff of the agricultural department. A meagre district staff of one D. A. O. and a few field assistants (without any office) was increased to a full fledged district office with a district agricultural officer incharge of it. He was given one technical assistant to help him at the head quarters, five field assistants for each taluka and an agricultural officer incharge of each Prant. The name of the propaganda section was changed to extension section.

The services of T. D. Associations were utilized for the distribution of controlled articles like cement and iron sheets at the cost of the propaganda work. At the district level a District Development Board was established with officials and M. L. As., M. L. Cs. and M. Ps. as non-official members with the Collector as the chairman. Later on, T. D. As. were changed into T. D. Boards with the Mamlatdar of the Taluka as the Chairman.

10. To train more personnel at the graduate level the admission at the Poona agricultural college was trepled and additional centres were opened for training field assistants. All these steps resulted in obtaining more men for the expansion of the agricultural department at the cost of quality. Subsequently two more colleges were started.

By about the year 1951 'The Grow More Food' campaign came to an end as an unsuccessful venture and 'The First Five

Year Plan' was started in its place on a nation wide scale.

11. In the first five year plan the aim was to reorganise the rural economy round co-operative farming. In the plan the ideal aimed at was to improve the condition of the farmer along with the means of production and to make him progressive minded. The agency created for the rural reconstruction was 'The National Extension Service' and in its intensive level 'The Community Development Project.'

Under the new set up in the N. E. S. and C. D., workers of all the rural development departments were placed under the revenue department as a single agency for the execution of the work and its control. This arrangement is the repetition of the one found unsatisfactory in the past. We have not yet succeeded in evolving a new type of official personality, an executive and a welfare officer rolled into one.

If past is any pointer to the future the revenue officers will have to be very alert and watchful to make this experiment a success. May god help them in their efforts to better the condition of rural areas through N.E.S. and C.D. Blocks with the help of their colleagues of the other departments.

INTRODUCING IMPROVED AGRICULTURAL IMPLEMENTS

By : **Y. C. ARYA**

THE importance of better implements in contributing to the increased agricultural production has been well recognized during the past few years. The role that they have to play in the Second Five Year Plan and in further more years to come, is even more important. At present, though there is seasonal unemployment of the agricultural labour, yet there exists its great shortage for a considerable period of the year specially at the time of seed bed preparation and harvesting. In the coming years our country has to become more industrialized, especially in the development of cottage industries. If the cottage industries are to expand and flourish, part of agricultural labour will have to be released for taking up cottage industries as their primary and whole time occupation. In order to increase our agricultural production, we shall have to increase the production per worker which is primarily dependent upon the implements, tools, and the equipment used by the farmers.

Efforts have been made through the Community Projects during the last few years to encourage the use of improved implements by the farmers. These efforts could not be made on an intensive country-wide scale. Even in these areas, where such programmes were launched, the results achieved were not very encouraging. The greatest hinderance at present in trying to introduce better agricultural implements is due to the lack of Research in this field. The real test of a sound research is its usefulness to the great number of ordinary cultivators, who have several limitations. Though advancement has been made in implement research at the Centre, as well as in different States, yet a great deal has been left in designing such implements that can be easily within the reach of the pocket of the farmers, that are simple in construction and are at the same time effetive in their operation. In view of the different soil and climatic conditions and varying cultural practices followed to grow crops, in different regions of our country, there still remains to be done the great task of designing implements separately to suit the local conditions of

various regions. The research of designing cheap and effective implements, enabling the common farmer to adopt them for various important agricultural operations, such as seeding and harvesting has practically come out with no success. Hence to help to introduce better implements amongst the farmers, special attention need be paid to Research. Through effective research such implements should be made available to them, that are :—

(i) Suited to the local conditions of soil and cultural practices.

(ii) Effective in doing work, for which they are designed.

(iii) Reasonably cheap and within the resources of common farmers.

(iv) Simpler in construction, without too many complications and within the manageable skill of common farmers.

(v) Capable of reducing the human drudgery by giving more outturn for less amount of labour and time put in.

To speed up the progress of implement research and to direct it in the proper directions to find out the solutions in special reference to the local problems and conditions of every region, the opening of "Regional Implement Research Stations" is an urgency. Though the general principles underlying the designing of implements may remain the same, yet the true problems of implements can be studied only in particular regions of their use and not anywhere else. These regional resarch stations shall also help to maintain a much closer link with the Extension workers of those particular regions.

Considerable progress can be made, in making cheap and similar implements available to the farmers, by bringing about useful improvements in existing indigenous implements. Introducing these improved and reformed indigenous implements shall be a much easier task than to introduce tools based on western agriculture and to completely replace the old implements, being used by cultivators for centuries.

The work of testing the implements under the local conditions is also very important. The quickest way of popularizing better implements is to try to introduce better and proved implements of one region into another. This necessitates the testing of the implements of any other region under the local conditions before recommending them to the farmers. Greatest benefit of researches done in different states and in different regions can be best achieved by testing the useful results of these researches at one another's region. Therefore many more "Implements testing stations" need be opened in the country. These testing stations will also be needed to test many newly designed implements at various Regional Research stations, and to offer proper statistical data on the utility of a number of them.

Much in the field of implement research can be contributed by the private manufacturing concerns. Manufacture of well designed implements will definitely go to form a better market, than the ones that are poor. On the part of the Government, if it helps the private concern to take up research in this field, it will go to help it in solving the problem of introducing improved agricultural implements.

Besides proper research, a sound implement Extension programme shall also have to be launched. The problem of popularizing implements is little different from popularizing some other elements of improved agriculture as better seeds, or manures. The view was expressed in the third Evaluation report of the Evaluation Committee that unless improved implements are manufactured and repaired locally, their adoption by the cultivators is bound to be slow. It can therefore, be realized that this problem of introducing better agricultural implements will have to be dealt not only in the field of Agricultural Extension, but also in that of Industrial Extension. Both these fields of Extension will have to be approached simultaneously, for neither of the two shall bear the fruits without the other. In the field of agricultural extension efforts are to be made for wide adoption of these implements by the cultivators, whereas in the sphere of industrial extension efforts are to be directed to encourage manufacture and repair of the implements locally by village carpenters and black smiths. As expressed before, the use of improved implements by the farmers shall be slow, unless there are such village artisans available, who are capable of repairing and manufacturing them and on the other hand a good number of village

artisans shall not take up their manufacture and repair as their profession, until they find good demand for them, i.e. until the farmers extensively make use of improved implements.

In the field of agricultural Extension, the task of popularizing the implements is comparatively easier. On the part of the rural people, the resistance to change is generally much less in the sphere of machinery, because of the reasons :—

(i) That improved tools and machinery, if well designed necessarily reduce the human drudgery and add to the comfort of the owners – an advantage that immediately attracts people to own them.

(ii) That, the rural people do not have to wait for long to test the usefulness of the tools and machines. In most of the machines, like winnowers, chaff cutters, cane crushers, seed drill, or even improved plough to some extent, they can find their advantage of more outturn with less labour on the very instant that they use them.

The advanced popularization of chaff cutters in Punjab and of cane crushers in Uttar Pradesh is based on the basic advantages, enlisted above, rather than on any thing else. In fact the problem of creating felt need for improved implements is much easier. All that may prevent the farmers from adopting them is the financial side of it. In the first instance the financial help of the Government to the farmers will contribute a great deal to popularize the implements. It may be given in the form of subsidy or loans.

It is undoubtedly a recognized fact that many bigger and costly bullock drawn machines such as seed drills, Mowers, Threshers or Disk–harrows are at present beyond the purchasing capacity of small farmers, however useful they may be. In the absence of any other suitable, less costly and smaller machines to do their jobs, it is necessary that these machines should also be made available to the farmers. This can be best accomplished by forming "Implement Stores" at every village level worker's head quarter. These stores may be formed by village Co-operative Societies. Another way of doing this may be to make these machines available to the farmers on hire or to perform various operations with these machines on the farmer's field on moderate charges, somewhat on the same line as is being done by C.T.O. and various state units in case of tractors and tractor implements.

To push up the programme of implements, through the Community Projects the necessity of a technical expert on the block level is also felt. Much success of the programme will depend upon solving the technical problems of the implements right on the farmer's field. Unfortunately, no provision of a technical man at the block level has been made in the present set up of N. E. S. The work till now had been mostly carried out by non–technical people, which came out with a poor performance.

On the side of the industrial Extension of the implements it shall not be out of place to make mention of the step of I.C. A. R. in launching the scheme of training village artisans in repairing and manufacturing of improved implements. Rural people, with technical aptitude are being trained at several workshops. It is hoped that more and more of such artisans will make use of this training and will make the repairing and manufacturing of implements available locally. However, if this scheme has to get still better response from the artisans, we shall have to guard against the slow progress in the adoption of improved implements by the cultivaters, lest these trained artisans may not find enough work to earn their livelihood, through this profession.

As, in the field of implement research, even a greater service in the task of popularizing the implements can be done by private manufacturing concerns. At present, most of the implement manufacturers have placed their agents in cities. By extending the facilities of purchasing these implements in villages, or atleast on block head quarters, and by trying to do propaganda work in villages for their own implements much more can be achieved than what could be achieved only through Government agencies. This will also help the manufacturing firms to create a better market for their implements.

"ANIMAL WASTE"

By: ASHOK MALAVIYA

ANIMAL waste is the most important source for the supply of nitrogen and phosphoric acid. The following are the important manures provided by animal waste :

I. Farm yard manure.
2. Cattle shed manure or cow dung.
3. Bone-meal.
4. Fish Manure.
5. Animal refuse.

Form yard manure is the result of stray ...ls while grazing on the field and the ...hed manure is the outcome of ... inside the shed in which they are ... Both the types of manure are called ...ng.

...lowing are the advantages of farm ...re :—

...ntains all the qualities required ...he growth of the soil.

...tegrates the soil.

...valuable physical effect on ...ure and water holding ... the soil.

...s humus (a brown or black ...n rich soils, formed by the ...f air on animal or vegetable ...) in the soil.

...s cohesion to the sandy soils.

...ers clayey soils more porous ...orkable.

...l manure has the power to ... ten times the nitrogen and ...cid to the soil than other ... It has been estimated by ... about 40% of the cattle dung ...rnt as fuel and 20% lost ...ective methods of cultivation ...ation. But the real difficulty ...storage of farm-yard manure. ...s do not utilise cattle urine ...uantity which results in the loss of nitrogen and potash. The system for the preparation of the farm yard manure should be such in which there should not be any loss of nitrogen.

Education among the cultivators about the value of cattle dung manure is very essential. It is, on the other hand very essential that they should be supplied fuel of some kind other than cattle dung. Research work was going on in the Indian Agricultural Research Institute and at some other places particularly at the Ramakrishna Mission at Belur for devising certain method which would ensure continued use of cow dung as fuel and at the same time conserve its full utility as manure. They experimented and showed that when moist dung is fermented in an enclosed vessel, a combustible gas, called methane, is obtained which burns with a hot blue flame. One pound of dung yields as much as one cubic foot of this gas so that a farmer having about five cows could get about 100 cubic feet of gas from the dung produced in a day. This is sufficient for an average family of four to five members for cooking purposes.

Qualities of cow dung gas plant :—

(A) It is quite simple in design and requires no engineering skill for its operation. It consists of a metalic drum about five feet in diameter and four feet in height placed over a fifteen feet deep well, where cow dung is collected for fermentation. The gas arising from this fermentation is collected in the drum which is kept in balance and under a regulated pressure by means of weights. The gas collected is carried in a tube to a burner, on which cooking is done. Summer time is most suited for the operation of this plant. In this season we get more gas for cooking and other purposes.

(B) **It is very cheep in its operation.** No other attention is needed except daily requirement of cow dung and equal quantity of water.

(C) Beyond the power of producing gas, it has also the power to keep the cow dung safe for manure. It keeps all the properties intact; while on the other hand it produces gas for fuel and other purposes also.

(D) The setting up of plant is also very cheap. The only capital requirements are, pits, drums, pipes and gas burners. The total cost for a cow dung gas plant required for a family of five members comes to about Rs. 250. The life of this plant is about 15 to 20 years. In fact, leaving aside some, the cultivators can bear this cost, taking into consideration its utility. However, researches are being made to reduce its cost. It has been estimated that a larger model, which would run on the cooperative basis, fulfilling the needs of the entire village, can reduce the cost to a certain extent. These big plants can produce gas for (a) heating, (b) lighting gas lamps, (c) operating gas engines to run small scale machinery and motors for electricity.

As we know that animal population of India is very large, so it is also true, without any doubt, that this method will certainly be of great help to the cultivators for their daily requirements. This will certainly, on the one hand, prevent them from cutting the trees and on the other hand create the habit of utilising cattle manure.

Bone-Meal

Bone-meal manure is the only source of phosphates in India. In our country bones of dead animals as well as bone powder are used in very little quantity. Government of India under the incentive of the grow more food campaign is trying to develop the use of bone meal manure. For powder making, softening of bone is an essential requirement. The Government has succeeded in inventing a new bone digester and is now trying to popularise it, pa[illegible] cularly in the community projects[illegible] A new bone digester has also been [illegible] by the Food and Agriculture Minist[illegible] the cost of digestion comes to[illegible] Rs. 25 per ton.

Fish Manure

Fish manure has sufficient nit[illegible] phosphorus. The requireme[illegible] manure is very essential fo[illegible] cereal crops. The use of th[illegible] limited to the Governmen[illegible] Due to its high cost it [illegible] among the cultivators.

Animal Refu[illegible]

To serve as manure all the[illegible] as horn shavings, hairwool, [illegible] tethers must be reduced to [illegible] Hornturning and shavings [illegible] 13 to 15 % of nitrogen.

A ZONAL SURVEY OF BREEDS OF INDIAN CATTLE

(Part One - South Zone)

By: **DAYAL DASS SHRIVASTAVA**

NOTE—Dairymen yearning for knowledge concerning cattle industry are generally faced with the problem of getting some authentic literature on performance and charact[illegible] important breeds of cow an[illegible]